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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/879,210	06/13/2001	Michael A. Kouritzin	EA-00095	4093

7590 09/30/2003

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EXAMINER

WEST, JEFFREY R

ART UNIT	PAPER NUMBER
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2857

DATE MAILED: 09/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/879,210

Applicant(s)

KOURITZIN ET AL.

Examiner

Jeffrey R. West

Art Unit

2857

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.35(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claims 1-4 are objected to because of the following informalities:

In claim 1, line 6, "creating state data for parties" should be ---creating state data for particles---.

In claim 2, line 3, "and current instants of time, and by employing" should be ---and current instants of time, and employing---.

In claim 2, line 4, "paths," should be ---paths.---

In claim 3, line 2, "a random set or particle state data" should be ---a random set of particle state data---.

In claim 4, line 3, "at various part, current, and future" should be ---at various past, current, and future---.

2. Claim 8 objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim 8 is identical to parent claim 6, thereby failing to further limit the subject matter of claim 6.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "said sensors" while there is no previous mention of any "sensor". Therefore, there is insufficient antecedent basis for this limitation in the claim.

Claims 2-8 are rejected under 35 U.S.C. 112, second paragraph, because they incorporate the lack of antecedent basis in parent claim 1.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,933,352 to Salut in view of Ballantyne et al., "Novel Branching Particle Method for Tracking."

Salut discloses a method and a system for non-linear optimal estimation of dynamic processes in real time comprising providing measurement sensing of

sampled data associated with the state of a signal process at a sampled instant of time under consideration, creating state data for particles that probabilistically resemble the state of said signal process, and repeatedly computing estimates of a conditional probability distribution based upon the arrival of new sampled data at subsequent sampled instants of time (column 5, lines 13-26 and 60-65). Salut also discloses calculating scalar magnitude weights, based upon weight values at a preceding (i.e. ancestral) instant, representing the probability that the components are those of the current state of the dynamic process to be estimated, and the past, current, and future/possible paths, (column 1, lines 25-32), all of which taking into account (i.e. scaling for) the probability of noise disturbing the measurements (column 5, lines 29-39 and 46-52). Salut also discloses generating intermediate ancestor state data at specific selected instances in time in order to facilitate the calculation of asymptotically optimal smoothing filters (column 7, lines 43-54) as well as discarding the ancestor state data when the most recent measurement time is greater than a defined span of time from the creation of a given ancestor particle (i.e. the particle falls outside a predetermined time window) (column 7, lines 55-56)

As noted above, the invention of Salut teaches all of the features of the claimed invention except for calculating branching values for each particle in order to determine necessary branching in performing the conditional probability estimation.

Ballantyne teaches a novel branching particle method for tracking a maneuvering signal given only a corrupted sequence of observations and estimating a conditional distribution based on the observations (abstract and 2.3) by calculating branching

values for each new particle obtained and performing renormalization by selectively duplicating or removing the particles sets based upon their agreement with each branching value (3.2.3). Ballantyne also teaches dividing the collection of particle data by the number of particles at the most recent time and assigning a weight of one divided by the current number of particles (Equations 20 and 3.3). Ballantyne also teaches associating state data with ancestor-sampled data to store integer weight values related to ancestral sampled data, wherein the integer weight is time-varying (i.e. representing the new non-ancestral particles) and updated/recalculated (i.e. incremented or decremented) with the occurrence of a new sample (i.e. in accordance with the number of non-ancestral particles) (3.2.2).

It would have been obvious to one having ordinary skill in the art to modify the invention of Salut to include calculating branching values for each particle in order to determine necessary branching in performing the conditional probability estimation, as taught by Ballantyne, because, as suggested by Ballantyne, the combination would have provided a method for improved speed and more cautious particle adjustment to avoid erroneous adjustment that hamper long-term adaptation (5).

Further, since the invention of Salut and Ballantyne calculates a plurality of paths from initial starting particles it would have been obvious to one having ordinary skill in the art to count the common ancestors in each of the paths that they are in because the combination would have insured that each of the calculated paths are complete by eliminating the possible occurrence of gaps caused by a common ancestral

Art Unit: 2857

particle being only associated with one of the plurality of paths that contain that particle.

Further still, although the combination of Salut and Ballantyne doesn't specifically disclose deleting any ancestor particle of sampled data which has a weight of zero, this is considered to be an inherent feature since applying/multiplying a weight of zero by a particle results in zero, which is mathematically equivalent to deleting the particle.

Response to Arguments

7. Applicant's arguments with respect to claims 1-7 have been considered but are moot in view of the new ground(s) of rejection.

It is noted, however, that Applicant argues that "Claim 35 U.S.C. rejections are all based on Salut patent no. 5,933,352 in view of the Ballantyne et al article entitled "Novel Branching Particle Method for Tracking". The cited Abstract of this article was published in July, 2000. The Abstract fails to disclose the Applicant's invention in detail to teach a person of ordinary skill in the art how to modify Salut to obtain the claimed invention." The Examiner maintains that the entire article of Ballantyne, rather than just the abstract, is used in the 35 U.S.C. rejections and provides sufficient teachings and motivation for combination with the invention of Salut.

Applicant also argues that "there is no suggestion that the teaching of the article and Salut should be combined. The Salut patent is for estimating the state of a

dynamic process in real time. It teaches nothing that prevents a patent from issuing on the particle tracking filter claims of the applicant.” The Examiner maintains that the combination of Salut and Ballantyne meets the invention as claimed and further, it would have been obvious to one having ordinary skill in the art to modify the invention of Salut to include calculating branching values for each particle in order to determine necessary branching in performing the conditional probability estimation, as taught by Ballantyne, because, as suggested by Ballantyne, the combination would have provided a method for improved speed and more cautious particle adjustment to avoid erroneous adjustment that hamper long-term adaptation.

Applicant then argues that “[t]he present application was filed on June 13, 2001 with one of the inventors, Michael Kouritzin, as a co-author. The Ballantyne et al. publication in July 2000 is not a valid prior art reference because the present application was filed less tha[n] a year after the publication.” The Examiner asserts that this argument is not sufficient in overcoming the rejection. The MPEP states:

715.01(c) Reference Is Publication of Applicant's Own Invention

Unless it is a statutory bar, a rejection based on a publication may be overcome by a showing that it was published either by applicant himself/herself or on his/her behalf. Since such a showing is not made to show a date of invention by applicant prior to the date of the reference under 37 CFR 1.131, the limitation in 35 U.S.C. 104 and in 37 CFR 1.131(a)(1) that only acts which occurred in this country or in a NAFTA or WTO member country may be relied on to establish a date of invention is not applicable. *Ex parte Lemieux*, 115 USPQ 148, 1957 C.D. 47, 725 O.G. 4 (Bd. App. 1957); *Ex parte Powell*, 1938 C.D. 15, 489 O.G. 231 (Bd. App. 1938). See

MPEP § 716.10 regarding 37 CFR 1.132 affidavits submitted to show that the reference is a publication of applicant's own invention.

CO-AUTHORSHIP

Where the applicant is one of the co-authors of a publication cited against his or her application, he or she may overcome the rejection by filing an affidavit or declaration under 37 CFR 1.131. Alternatively, the applicant may overcome the rejection by filing a specific affidavit or declaration under 37 CFR 1.132 establishing that the article is describing applicant's own work. An affidavit or declaration by applicant alone indicating that applicant is the sole inventor and that the others were merely working under his or her direction is sufficient to remove the publication as a reference under 35 U.S.C. 102(a). In re Katz, 687 F.2d 450, 215 USPQ 14 (CCPA 1982).

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire ~~THREE~~ MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the

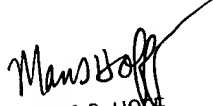
Art Unit: 2857

examiner should be directed to Jeffrey R. West whose telephone number is (703)308-1309. The examiner can normally be reached on Monday through Friday, 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on (703)308-1677. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-7382 for regular communications and (703)308-7382 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

jrw
September 25, 2003


MARC S. HOFF
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800